

Distr.
GENERAL

A/CONF.172/10
26 April 1994

Original: ENGLISH

Item 10 (g) of the provisional agenda*

NATURAL DISASTER REDUCTION: DROUGHT MANAGEMENT

Technical session

Programme

The technical session on drought management has been organized by the Food and Agriculture Organization of the United Nations (FAO).

The speakers for the session are as follows: Professor Dr. H.-G. Bohle (Germany), Mr. R.C.A. Jain (India), Mr. R.T. Mugwara (Zimbabwe), a representative of the Government of Australia (not yet confirmed). Statements will also be made by representatives of FAO, the World Food Programme (WFP), and the International Fund for Agricultural Development (IFAD).

Format and objectives of the session

The presentation is organized in two parts, followed by a panel discussion. Part one outlines the state of art of drought management, including early warning systems at the global and national scales; preparedness planning for drought; assessing vulnerable populations; and emergency relief strategies, as well as rehabilitation and mitigation of agricultural production systems. Part two consists of a demonstration of the application, at the national and regional levels, of preparedness, relief and mitigation in drought-prone areas.

The focus of the presentation is less on relief operations at the occurrence of drought than on techniques to forecast drought and its impact, as well as on devising management systems, supporting policies and institutions to evolve sustainable agricultural production in drought-prone areas.

* A/CONF.172/1.

Drought cannot be avoided, but its impact on human lives and property and its consequences on national economies can be reduced. Traditional farming and pastoral systems have been well adapted to absorb drought-shocks. A combination, however, of reduced rainfall, particularly in the Sahel region, increased population pressures and resulting overuse of natural resources, have led to land degradation and an ever-worsening cycle of crop failures due to drought. It is becoming clear that drought is both an emergency and a development issue since it affects both short-term consumption and long-term development.

The short-term impact of drought on human livelihood depends essentially on the efficiency and timeliness of the relief response, the effectiveness of which will in turn be increased by early prediction of droughts and well-planned response mechanisms. In the long run, the challenge is to devise management strategies and supporting policies that can reduce the physical, biological, economic and social impact of drought and enhance food security on a sustainable basis.

Advances in satellite and communication technologies enable early warning systems to provide more reliable information on the monitoring of vegetation and impending food crisis. Early warning that is not well integrated with decision-making and response mechanisms will not, however, achieve its objectives. Local participation is essential in the design, implementation and evaluation of preparedness measures if they are to have a chance to succeed.

The major objectives of mitigation efforts are not only to abate the impact of the current emergency but also to shorten the period of recovery and, in the long term, to reduce vulnerability to future food emergencies.

Diversification is a key to reducing the structural vulnerability of livelihood systems in drought-prone, degraded areas. Almost all technical innovations require some type of investment. Hence, there is a need to secure land tenure. There is a basis for investment in resilience, with a reasonable expectation of returns. In most drought-afflicted parts of Africa, for example, the impact of drought can be considerably reduced by investment in soil and water conservation, drought-resistant crop varieties, improved communications and better crop storage and handling. Improvements in those areas are not directly aimed at the provision of a safety net for household consumption; rather, the objective is to maintain both production and household productive assets, thus defending long-term food security. While not eliminating the need for better reactive capabilities, such investment can reduce the impact of drought as expressed in high levels of rural poverty, low levels of agricultural growth and destabilizing swings in national income.

As for the development of sustainable agricultural production systems that can absorb drought-shocks, numerous technologies are available and will be briefly summarized in the presentation. These include soil and water conservation measures, drought tolerant crop varieties, fertilization techniques and agro-forestry.

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Distr.
GENERAL

A/CONF.172/10/Add.1
26 April 1994

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Addendum

Managing drought: the Indian experience

Summary of presentation by Mr. R.G.A. Jain (India)

1. India receives 74 per cent of its annual aggregate precipitation of 400 million hectare metres during the south west monsoon (June-September). Due to erratic behaviour of the monsoon, in both low (less than 750 mm) and medium (750-1,125 mm) rainfall, regions constituting 68 per cent of the total sown area of about 141 million hectares are vulnerable to drought.
2. Drought response mechanisms in India have evolved over time. The concerns of public intervention policies have evolved from minimizing starvation deaths (Famine Code, 1880) or preventing starvation deaths (Scarcity Manuals, 1950s) to ensuring physical and economic access to food through employment generation and public distribution systems during droughts in the 1960s and 1970s.
3. The drought of 1987 represents a watershed in the evolution of responses to drought. It underlined the unsustainability of managing droughts through transfer of resources and led to the appreciation of the need for dovetailing development strategies to the resources endowment of drought-prone areas in the country.

* A/CONF.172/1.

4. The 1987 drought, which had an overall rainfall deficiency of 19 per cent, affected 50.6 million hectares of the crop area with a population of 285 million in 263 districts in 15 states. The Union Government earmarked Rs 14.7 billion for combating the national challenge posed by one of the worst droughts of this century. The strategy included careful husbanding of water resources, contingency crop planning, livestock management, generation of 1.2 billion mandays through off-farm employment programmes and delivery of 21 million tons of foodgrains through the public distribution system to ensure the food and nutritional security of the affected population. The success of drought management in 1987 was reflected in the reduced drought impact on various economic parameters such as foodgrains production (-3.5 per cent), industrial production (+7.5 per cent), inflation rate (10.4 per cent) and also the sharper economic recovery after the drought was over. In contrast to a previous major drought (1965-1966), the bulk of drought expenditure in 1987 was on development programmes (94 per cent) aimed at imparting greater resilience through drought proofing in the vulnerable areas.

5. Several development programmes which evolved from the 1987 drought initiatives now constitute major planks of India's drought mitigation strategy. These include the National Watershed Development Programme for Rainfed Areas, the Technology Mission on Oilseeds and Pulses, the Special Foodgrains Production Programme, the National Water Policy, the Million Wells Scheme, the Watershed Development Programme for Restoration and Regeneration of Degraded Lands and the massive Rural Employment Generation Programme.

6. Drought is no longer viewed merely as a discrete event calling for emergency relief. India's current drought management strategy includes an early warning and monitoring system, emergency response mechanisms, a standby financial support arrangement (Calamity Relief Fund), preparedness plans (for crop production, employment generation, food security, drinking water, health care, nutrition and livestock preservation) and preventive measures which seek to increase integration of drought mitigation with development programmes.

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Distr.
GENERAL

A/CONF.172/10/Add.2
26 April 1994

Original: ENGLISH

Item 10 (g) of the provisional agenda*

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Technical session

Addendum

Southern African Development Community, Food Security Technical
and Administrative Unit: The 1991/1992 drought emergency in
southern Africa; a case study

Summary of presentation by Mr. R.T. Mugwara (Zimbabwe)

1. Despite a severe drought in the region of the Southern African Development Community (SADC) during 1991/1992, widespread famine was not experienced, and the development plans of individual countries were not badly dislocated. A range of United Nations agencies and of non-governmental organizations worked with the region's national administrations to expedite successfully food, medical and other aid to some 20 million people. At the national level, early warning systems were instrumental in showing that urgent action and external assistance to meet food needs were required. Both national and regional drought task forces operated to ensure that sufficient food was made available to prevent famine.
2. The SADC regional early warning system became operational in 1985 and, at the start of its second phase in 1990, all SADC countries had national units operating under the umbrella of the regional system.

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3. The harvest in the 10 SADC countries in 1991/1992 was estimated to be approximately half of the normal harvest and the total import needs for the southern part of Africa were estimated at over 11 metric tonnes. Handling and transporting these immense quantities were foreseen as potentially very difficult. To coordinate the region's response to the drought, SADC set up a regional task force, comprising representatives of government ministries of agriculture and of transport. The task force coordinated the implementation of assistance programmes and was supported by similar national bodies and by the Logistics Advisory Centre (LAC) in conjunction with the World Food Programme.

4. One of the major factors in preventing famine was the free flow of information on changing conditions. The Food Security Bulletin, backed by the national ones, documented the seasonal changes not only in weather but in food security; disaster relief officers as well as long-term planners began to rely on them. The LAC bulletins allowed donors and Governments alike to trace the flow of ships and grain into the countries. This free exchange of information was central to the success of the relief effort and has increased the capacity of SADC to coordinate and plan.

5. Non-governmental organizations played a vital role in the process. Targeting potential recipients for relief was difficult, if not unsuccessful, in some cases. Finely tuned statistical indicators, incorporated into detailed registration forms for each household, did not always work on the ground.

6. The main lessons to be learned from the 1991/1992 drought management process are as follows:

(a) It will be important to reinforce the region's capacity to meet its information needs, especially early warning information, targeting vulnerable groups, resource mobilization, aid flows and recovery needs;

(b) Institutional links need to be built and maintained in good times between line ministries and between Governments and international organizations, donors, regional institutions, non-governmental organizations and United Nations agencies;

(c) There is a need to expand research and policy analysis of drought induced shocks on development capacity;

(d) Further food security training, especially in the field of planning for and managing disasters, should be provided;

(e) There is a need to ensure that food reserves are either maintained in the region or can be acquired and distributed speedily and cost-effectively.

Distr.
GENERAL

A/CONF.172/10/Add.3
26 April 1994

Original: ENGLISH

Item 10 (g) of the provisional agenda*

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Technical session

Addendum

Managing drought: preparedness, response and
drought-proofing strategies

Summary of presentation by the Food and Agriculture
Organization of the United Nations

1. Drought cannot be avoided but its impact on human lives and property, as well as its consequences on national economies, can be reduced. Generally, time is available to take necessary action to avoid drought becoming a disaster.
2. The short-term impact of drought on human livelihood depends essentially on the efficiency and timeliness of relief response, which in turn will be increased by early prediction of droughts and well-planned response mechanisms. In the long run, the challenge is to devise management strategies and supporting policies that can reduce the physical, biological, economic and social impacts of drought and can enhance food security on a sustainable basis.
3. There are several tools for anticipating drought, including weather forecasting, modelling soil moisture levels and remote sensing. Advances in satellite and communication technologies enable early warning systems to provide more reliable monitoring of vegetative cover and hence impending food

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crisis. Agrometeorological and satellite-based data for monitoring food crop conditions and drought detection are extensively used by the Global Information and Early Warning System of the Food and Agriculture Organization (FAO). Its principal objectives are to monitor continuously food supply and demand conditions, identify countries or regions where food shortages are imminent and assess possible emergency food requirements. Substantial progress has also been made in establishing national early warning systems in about 40 developing countries. Early warning that is not well integrated with decision-making and response mechanisms will not, however, achieve its objectives. This requires well considered response options at the leadership's disposal, as well as the financial and material means to do the things that need to be done.

4. The aims of disaster preparedness are to minimize the adverse effects of a hazard through effective precautionary measures and to ensure timely, appropriate and efficient organization and delivery of emergency response following the impact of a disaster. In the absence of national preparedness plans, remedial measures are likely to be delayed, and the costs to be incurred in terms of human life and loss of material and livestock could be considerable. Thus, the cost of rehabilitation would also be higher. National preparedness measures should form an integral part of long-term food security programmes and local participation in their design, implementation and evaluation is essential.

5. The major objectives of mitigation efforts are not only to abate the impact of the current emergency but also to shorten the period of recovery and, in the long term, to reduce vulnerability to future food emergencies. More specific input to food production and range resource management require, for full effectiveness, prior action in policy areas, such as pricing and marketing policies and land tenure. The highest priority should be given to input that arrest land degradation and improve food security. Where crop technology can help, it is most likely through water conservation, drought-resistant crop varieties and better on-farm storage. Widespread soil erosion and declining soil fertility are further constraints to improving productivity. Overgrazing is a widespread constraint to the sustainable development of drylands, requiring input to improve animal husbandry, livestock off-take and the integration of grazing control with water development. In the drylands, demand for fuelwood is increasing and supply is rapidly diminishing, with many areas having already reached a deficit situation. Forestry can play an important role in the control of soil erosion, ameliorating the environment, contributing feed for livestock and supplementing the diet of the rural population. Diversification is the key to food and livelihood strategies in drought-prone, degraded areas.

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Distr.
GENERAL

A/CONF.172/10/Add.4
27 April 1994

Original: ENGLISH

Item 10 (g) of the provisional agenda*

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Addendum

Development and the vulnerability of rural households to
drought: issues and lessons from sub-Saharan Africa

Summary of presentation by the International Fund
for Agricultural Development

1. The devastating and prolonged droughts in the Sahel in the mid-1980s, and the record drought of 1991-1992 in southern Africa served to focus international attention upon the vulnerability of large sections of the African rural population to dramatic losses of food security when rains fail. The immediate concern has been to maintain food supplies to affected populations and, correspondingly, drought has tended to be seen as principally a short-term food supply problem, the sole possible response to which is emergency food aid. Subsequent evaluations of the longer-term effects of drought, however, revealed that its influence spread far beyond the short term and was not restricted to food supply. Specifically, it was found that the effects of drought: (a) contribute to deepening social polarization and poverty as the poorest families find it increasingly difficult to recover from one drought before entering another, a process involving progressive income and asset depletion among the poorest households; (b) depress long-term economic growth, especially in agriculture, as rural households hedge against future drought by holding their assets in liquid or near liquid forms, as opposed to engaging in long-term fixed investments in agricultural improvement; and (c) have a severe macroeconomic impact as agricultural crisis restricts availability of raw materials to allied industrial sectors, dampens demand, fuels inflation and disrupts government finances.

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2. If analysis shows the costs of drought to be much greater than simple immediate loss of output, so it has shown that emergency food supplies usually come after the major damage has been done. The long-term economic and social costs of drought spring from the loss of productive assets, particularly among small and poor farmers (including refugees from environmental disasters). It is evident, however, that hunger emerges only after farm assets have been liquidated to purchase food and that, therefore, hunger-triggered emergency food assistance arrives too late to prevent the loss of productive resources (or their de facto distribution to richer households) and, of course, does nothing to assist the stable resettlement of temporarily displaced populations. .

3. The difficulty of introducing emergency assistance at a sufficiently early point in the asset depletion process has prompted concern with pre-emptive measures, not to respond to drought incidence but to reduce the possible impact of drought upon rural asset holding. In fact, such risk-avoidance behaviours are already part of the traditional economic strategies of African farmers, as evidenced by, for example, crop diversification. Suitable avenues for investment against drought vulnerability at the farm level include: support for further crop diversification; development of drought tolerant or short-season crop varieties; water harvesting and conservation; and small-scale irrigation. The impact of drought is, however, mediated not only by the physical vulnerability of crops but also by social and economic factors beyond the farm-gate. One of the major dimensions of drought situations is a dramatic change in relative prices: the price of food goods rises (in response to falling local supply), while the price of producer goods, which must be sold to acquire food, falls (in response to the rise in distress sales). The opening of the price scissors is a major factor in the decapitalization of small farms. This opening can be significantly reduced, however, by investment in improved market access, including transport and trading facilities.

4. Analysis of factors influencing the impact of drought illuminates the fact that investment can affect the level of actual drought impact on national and rural economies, and also that this investment can yield a high economic and social return. There is, however, no single investment strategy against drought. On-farm drought resilience strategies, for example, are more economically justified in relatively low potential areas, whereas investments in strategies based on social and economic infrastructure development (both physical and organizational) are more justified in high potential areas. There is, none the less, ample justification for approaching drought as an economic problem whose impact can be modified through investment, which itself can be evaluated on the basis of normal cost-benefit criteria. From this perspective, the equation between drought and famine or impoverishment is not essential, but expressive of a situation in which there has been inadequate attention paid to investment in prevention. Disaster is only partly natural, it is also partly an index of economic and social unpreparedness - particularly in those situations, as in much of sub-Saharan Africa, where drought is not idiosyncratic and unpredictable but a more or less regular element of the agricultural scene.

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Distr.
GENERAL

A/CONF.172/10/Add.5
27 April 1994

Original: ENGLISH

Item 10 (g) of the provisional agenda*

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Addendum

Components of an emergency relief strategy

Summary of presentation by the World Food Programme

1. The focus of this section of the presentation is on drought management in Africa, and more specifically on subsistence farmers and agro-pastoralists. These are the real experts on drought management, and any intervention must be based on a close understanding of their world and on consultation with representatives from the community.
2. The World Food Programme (WFP) is expanding its use of vulnerability mapping to improve its own understanding of the conditions of the people affected by drought and thus its response to the situation on the ground. Such mapping would complement the information collected through the Early Warning System of the Food and Agriculture Organization (FAO). The objective of vulnerability mapping is to identify better the risks in areas subject to drought, and to both target emergency assistance earlier, and to target development resources at areas where people are most at risk of food scarcity.
3. To establish the relative vulnerability to food shortfalls of various areas within a country, it is necessary to look not just at indicators on food availability but also at the structure of the economy on which the population in high risk areas depends, and the strengths which are manifest in the household strategies, or coping strategies, of the people. Knowledge about these household strategies can also help us to find more effective ways to use food aid to enhance people's ability to guarantee their own food security without dependence on deliveries of emergency food aid.

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4. The findings of WFP while monitoring household level response to drought in Zimbabwe during the drought relief operation of 1992/1993 provide a microcosm of the situation in many other countries and demonstrate many of the household strategies which are used by a drought-affected population. The household strategies which carried people through the drought were a mixture of traditional seasonal coping mechanisms, a high dependence on remittances from working family members in the cities, and registering for food distributions. Some coping strategies were shared between both rural and urban family members. Two major coping mechanisms in the worst hit parts of the country were gold panning and a high dependence on goat sales and consumption. In many families, there were difficult decisions to make between longer-term household strategies and short-term strategies to deal with the drought. Food aid made some longer-term options possible in areas where there was not a total dependence on the distributed food for survival.

5. In the presentation, two factors and their relationship to household strategies are given special focus: migration, and the role of local markets. Certain WFP interventions which are aimed at strengthening people's coping mechanisms are described. Some issues that arise in the management of drought operations are also touched upon.

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